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AMSAT NEWS SERVICE
ANS-152

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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ANS-152 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 152.01
 >From AMSAT HQ KENSINGTON, MD.
DATE June 01, 2014
To All RADIO AMATEURS
BID: $ANS-152.01

AMSAT Prepares for ARRL Centennial Celebration

AMSAT is preparing for its participation at the ARRL Centennial Celebration and National Convention in Hartford Connecticut July 17 through 19.

On Thursday an AMSAT team with present the all day Training Track,

"An Introduction to Amateur Satellites", AMSAT President Barry Baines, WD4ASW will be the facilitator for the event which will begin at 8:30 am and run through 4:30pm. Baines explains, "The training session is to serve as a 'Soup to Nuts' approach to getting started with working Amateur Radio Satellites."

Baines will lead the training with an Overview of the History of Amateur Radio in Space, including our future;

Director of Educational Outreach Joe Spier K6WAO will cover Understanding Orbits, Kepler Elements, and Doppler Shift;

V.P. for Educational Outreach E. Mike McCardel KC8YLD will discuss Satellite Tracking and Tracking Software with an emphasis on SATPC32;

Director Field operations Patrick Stoddard WD9EWK/VA7EWK and Area Coordinator Peter Portanova W2JV will address Station Configuration and Satellite Operation including general operation, Easy Sats, FM Birds, CW and SSB Birds and telemetry;

AMSAT Fox-1 Software Team Co-Leader Burns Fisher W2BFJ will present an overview and discuss the capabilities of AMSAT's Fox-1 Satellite due to launch in 2015.

AMSAT will also host a Forum, "An Overview of AMSAT" Friday at 2pm in room 25. Immediately following the Forum Peter Portanova W2JV will present "Working the Amateur Radio FM Satellites with Your HT", in the same room.

Throughout the weekend AMSAT will be staffing Booths 500 and 501. The booth will feature the legacy of Amateur Radio in Space with prototypes and models of OSCAR-1, AO-07, and Fox-1 on display.

During the weekend an ARISS contact will be held nearby the convention venue at the Connecticut Science Center. Local students will be asking questions directly to an astronaut via Amateur Radio. The contact time has yet to be determined.

For more information on the ARRL Centennial and National Convention visit http://www.ARRL2014.org

[ANS thanks AMSAT for the above information]

May/June 2014 AMSAT Journal is Ready

The May/June 2014 AMSAT Journal is completed and is at the print shop. Look for it in your mailbox soon. In this issue you will find:

+ AMSAT Announcements
2014 Symposium First Call for Papers
2014 Board of Directors Election Reminder

+ Apogee View by Barry Baines, WD4ASW

+ AMSAT Office Moves to New Quarters

+ AMSAT at Ham Radio University by Peter Portanova, W2JV

+ AMSAT at the Greater Houston Hamfest by Allen Mattis, N5AFV
and Andy MacAllister, W5ACM

+ Full Circle - 1983 to 2014 Inspiration of a Student by
Dr. Michael Butler, G4OCR

+ The FUNcube Dongle and SDR Software School Experiments at
UCF in Cuba by Hector Martinez, CO6CBF/KF5YXV

+ Insights Into Fox-1 Development - The IHU and Telemetry Simulator
by Burns Fisher, W2BFJ

+ Stefan Wagener, VE4NSA Named ARISS Canadian Delegate

+ WRAPS Rotor Enhancements Add a Second Beam and Circular
Polarization by Mark Spencer, WA8SME

Our editors, JoAnne Maenpaa, K9JKM; Douglas Quagliana, KA2UPW/5;
Bernhard Jatzeck, VA6BMJ; and James Howard, K3JPH look forward to
receiving your articles, photos, and news. Please send your material
to journal(a)amsat.org.

There is an AMSAT Journal Author's Guide posted at:
http://www.amsat.org/?page_id=1709

For circulation problems and address changes please contact Martha
at the AMSAT Office (martha(a)amsat.org) for fastest service. You can
also give Martha a call at: 301-822-4376.

[ANS thanks the AMSAT Journal Editors for the above information]

First Call for 2014 AMSAT Space Symposium Papers

This is the first call for papers for the 2014 AMSAT Annual Meeting
and Space Symposium to be held on the weekend of October 10-12, 2014,
at the DoubleTree Hotel by Hilton, Baltimore-Washington International
Airport (BWI), Baltimore, Maryland. Proposals for papers, symposium
presentations and poster presentations are invited on any topic of
interest to the amateur satellite community. We request a tentative
title of your presentation as soon as possible, but no later than
August 1. The final copy must be submitted by September 15 for
inclusion in the printed proceedings. Abstracts and papers should be
sent to Dan Schultz at n8fgv at amsat.org

[ANS thanks the 2014 Baltimore Symposium Committee for the above
information]

AMSAT Forum and AMSAT/TAPR Banquet Videos from Dayton Hamvention

Links to videos from Dayton Hamvention 2014 have been posted on the
AMSAT NA webpage. The videos are from the AMSAT/TAPR Banquet and the
AMSAT Forum by Steve Belter, N9IP.

The videos included are presentations from:
Tom Clark, K3IO - 60 Years a Slave to Amateur Radio
Barry Baines,WD4ASW - AMSAT Update
Jerry Buxton, N0JY - Fox Satellites Update
Howard Long, G6LVB - FUNcube Satellite Update
Drew Glasbrenner, K04MA - Satellites on the Horizon
Frank Bauer, KA3HDO - Amateur Radio on the International Space Station
EMike McCardel, KC8YLD - AMSAT Education Update

http://www.amsat.org/?p=2766

[ANS thanks Steve Belter, N9IP and AMSAT-NA for the above information]

Soyuz-2 Launch June 28 Satellite List

Launch of Soyuz-2.1b, Fregat-M
[28 Jun 2014, 15:58 UTC, Baikonur Cosmodrome, Kazakhstan]

Satellites Manifest

AISSat-2, University of Toronto, Institute for Aerospace Studies,
Norway Baumanets-2, Bauman Moscow State Technical University, Russia
DX-1, Dauria Aerospace, Russia
Meteor-M-N2, NPP VNIIEM, Russia
M3MSat, CSA/COM DEV, Canada
Relek (MKA-PN-2), Lavochkin, Russia
SkySat-2, Skybox Imaging, USA
TechDemoSat-1, SSTL, UK
UKube-1, UK Space Agency, UK
Venta-1, Ventspils University, Latvia

UKube-1
Transponder uplink 435.040 - 435.020 MHz
Transponder downlink 145.940 - 145.960 MHz (Inverting)
Telemetry downlink 145.840 1200bps BPSK
S Band downlink 2401.000 QPSK or OQPSK
myPocketQub 437.425 - 427.525 MHz
http://amsat-uk.org/2014/04/01/ukube-1-june-19-launch-date/

FU Ncube-2 boards subsystem
Transponder uplink 435.080 - 435.060 MHz
Transponder downlink 145.930 - 145.950 MHz (Inverting)
Telemetry downlink 145.915 1200bps BPSK
http://amsat-uk.org/2012/10/20/funcube-2-boards-delivered-to-clyde-<
br>space/

DX-1
Uplink Command and Control 144.975 - 145.025 MHz
Downlink Telemetry data 434.975 - 435.025 MHz
Uplink AIS ship tracking RX 162.0125 - 162.0375 MHz
Downlink data 2269.500 - 2270.500 MHz
http://amsat-uk.org/2014/04/27/dx-1-microsatellite-baikonur/

< br>[ANS thanks Mineo Wakita, JE9PEL for the above information]

Dnepr Launch June 19 Satellite List

Launch of Dnepr
[19 Jun 2014, 19:11 UTC, Dombarovsky SC, Russia]

Satellite Manifest

1. AeroCube6 (non-amateur)
The Aerospace Corporation, USA

2. ANTELSat
Antel (the national telecom service provider) and
FING (Facultad de Ingenieria de la Universidad de la Republica),
Uruguay
437.575MHz 1200bps AFSK, 2403.000MHz 1Mbit GFSK/MSK, 437.280MHz CW

3. AprizeSat-9,10 (non-amateur)
SpaceQuest, USA

4. BRITE-Toronto(CANX-3E) (non-amateur)
UTIAS (University of Toronto, Institute for Aerospace Studies), Canada

5. BRITE-Montreal(CANX-3F) (non-amateur)
UTIAS (University of Toronto, Institute for Aerospace Studies), Canada

6. BugSat-2,3 (unknown)
Satellogic S.A., Argentina

7. Deimos-2 (non-amateur)
Satrec Initiative (SATRECI), Spain

8. ESTELLE
University of Tartu, Estonia
UHF GMSK/BPSK downlinks up to 19k2 bps and a series of HDRT
experiments
including 2.4GHz downlink using GFSK/BPSK at up to 1Mbps, 5.8GHz
downlink
using GFSK and BPSK at up to 10Mbps and 10GHz downlink at up to 10Mbps

9. Hodoyoshi-3,4 (non-amateur)
University of Tokyo, Japan

10.KazEOSat-1 (non-amateur)
Kazakhstan Gharysh Sapary (KGS), Kazakhstan

11.Kompsat-3A(Arirang-3A) (non-amateur)
Korea Aerospace Research Institute (KARI), South Korea

12.Lemur-1 (unknown)

13.NanosatC-Br1
Federal University of Santa Maria, Brazil
Uplink UHF 1200bps FM, Downlink 145.865MHz 9600bps BPSK

14.QB50p1/FUNCube-3
The Von Karman Institute for Fluid Dynamics, Belgium
435.035-435.065MHz transponder uplink
145.935-145.965MHz transponder downlink
145.815MHz 1200bps BPSK packets

15.QB50p2
The Von Karman Institute for Fluid Dynamics, Belgium

145.880MHz 1200bps BPSK
145.840MHz 9600bps FSK

16.SaudiSat-4
Saudi National Satellite Technology Program (NSTP), Saudi Arabia
Ka-Band Transponders

17.Serpens (unknown)

18.SkySat-3 (non-amateur)
Skybox Imaging, USA

19.TigriSat (non-amateur)
La Sapienza University of Rome, Italy

20.UniSat-6
GAUSS, La Sapienza University of Rome, Italy
437.425MHz 9600bps GMSK

21.UNSA-SAT1
QB50 & Instituto Astronomico y Aeroespacial Pedro Paulet, Peru
Downlink 3.4GHz 230kbps BPSK

[ANS thanks Mineo Wakita, JE9PEL for the above information]

LituanicaSAT-1 FM Transponder Active until June 4

The LituanicaSAT-1 team have announced the FM transponder should be active until June 4, 2014.

Dear radio amateurs,

Due to favorable orbit conditions LituanicaSAT-1 is now operating under 100% sunlight until about 4th of June. Thus we have decided to turn the transponder on during this period. The CW fm beacon and packet telemetry are also on right now.

73,
Laurynas Maciulis
LY1LM, LY5N

LituanicaSAT-1 FrequenciesFrequency are approximately 435.1755 MHz (+/- 10 kHz Doppler shift) for the downlink and 145.950 MHz for the uplink with 67 Hz CTCSS.

The tiny satellite is just 10x10x10 cm with a mass of 1.090 kg yet it has a VGA camera and a 145/435 MHz FM voice transponder, designed and built by Lithuanian radio amateurs.

The prototype of the FM repeater has been operating in the home of its designer Žilvinas Batisa LY3H in Elektre.nai, Lithuania.
Further information at
http://ly3h.epalete.com/?p=303

FM transponder operating techniques
http://www.dk3wn.info/p/?p=44412

LituanicaSAT-1 CubeSat

http://amsat-uk.org/2014/02/27/lituanicasat-1-cubesat/

Reports should be sent to:
ly5n at qrz.lt

[ANS thanks AMSAT-UK for the above information]

SPROUT Slow Scan TV and Digitalker Active

Slow Scan TV (SSTV) images in Scottie 1 format have been successfully received from the amateur radio satellite SPROUT on 437.600 MHz FM (+/- 9 kHz Doppler shift). The Digitalker has also been active.

SPROUT, a 20 x 20 x 22 cm amateur radio nano-satellite with a mass of 7.1 kg, launched successfully with the L-band (1236.5 MHz/1257.5 MHz/1278.5 MHz) Synthetic Aperture Radar (SAR) satellite ALOS-2 on May 24, 2014 at 0305 UT. SPROUT is now in a 654 km, 97.9 degree inclination Sun Synchronous Orbit (SSO).

SPROUT (Space Research On Unique Technology) was built by students from Nihon University and its objectives are:

1. Operation of satellite by radio amateurs.

A FM Digitalker will enable the satellite to speak to amateurs around the world. The Voice Message Box will record transmissions from radio amateurs and play them back.

Pre-loaded images from the Message Gallery can be transmitted using Slow Scan TV (SSTV).
Pictures of the Earth can be transmitted by SSTV and radio amateurs can receive it using free software such as MMSSTV. As part of the Earth mapping project the team ask radio amateurs to contribute pictures they have received from the satellite for display on the SPROUT website.

The satellite also has a packet radio Digipeater and Text Message Box function.
Demonstration of the deployment of the combined membrane structure and verification of the design method of the structure SPROUT has a triangular membrane supported by two tubes like framework. They are folded and stored in the satellite before the launch. After the launch, the nitrogen gas is injected into the tubes in space, and they extend, so that the membrane deploys (called “combined membrane structure”).

3. Demonstration of attitude determination and control of a nanosatellite using the sun sensors, gyros, geomagnetic sensor and magnetic torquers.

Callsign: JQ1ZJQ
Size: 214x210x220 mm
Weight: 7.1 kg
Mode: 1200bps AFSK, 9600bps GMSK
CW downlink 437.525 MHz
FM packet downlink 437.525 MHz
Digipeater uplink 437.600 MHz
Digitalker downlink 437.600 MHz

SSTV downlink 437.600 MHz

SPROUT English website
http://sat.aero.cst.nihon-u.ac.jp/sprout-e/

SPROUT Japanese website
http://sat.aero.cst.nihon-u.ac.jp/sprout/

Nihon-Univ. Miyazaki Laboratory on Facebook
https://www.facebook.com/pages/Nihon-Univ-Miyazaki-Laboratory/406566642818860

Telemetry Software http://sat.aero.cst.nihon-u.ac.jp/sprout-e
/2-Software-e.html

Tele metry format
http://sat.aero.cst.nihon-u.ac.jp/sprout-e/2-Formats%20of%20
telemetr y-e.html

SPROUT launch data page
http://sat.aero.cst.nihon-u.ac.jp/sprout-e/2-Launch%20data-e.html

TLE’s from the North American Aerospace Defence Command (NORAD)
are also available at
http://celestrak.com/NORAD/elements/tle-new.txt

Adding new satellites to SatPC32, Gpredict and Nova
http://amsat-uk.org/2013/11/23/adding-new-satellites-to-satpc32/

Free Slow Scan TV (SSTV) software MMSSTV
http://hamsoft.ca/pages/mmsstv.php

The JE9PEL website has information on other satellites on this launch
http://www.ne.jp/asahi/hamradio/je9pel/jaxalos2.htm

[AN S thanks AMSAT-UK for the above information]

KLETSkous Linear Transponder Demonstration

A video shows a demonstration, given on May 24, 2014, of the KLETSkous
1U Cubesat amateur radio transponder.

A 435/145 Linear transponder is planned with a bandwidth of 20 kHz.

Currently the team are considering frequencies in the 435.100 to
435.140 MHz range for the uplink and 145.860 to 145.980 MHz for the
downlink.

The scientific payload will be an experiment analysing “Worm Holes”.
This experiment will try and find the portholes between Sun and Earth.

Further information at
http://zr6aic.blogspot.co.uk/search/label/KLETSkous
and at http://www.amsatsa.org.za/

[ANS thanks AMSAT-UK for the above information]

TshepisoSAT / ZACUBE-1, Six Months on Orbit

The South African CPUT TshepisoSAT team were invited to give a mission update at the SA AMSAT‘s Space Symposium on Saturday, May 24, 2014 at the Innovation Hub in Pretoria.

The event was well attended and even had representatives from SANSA in attendance. Presentations on other CubeSats included Denel Dynamics’ DynaCube, FUNcube-1 and SA AMSAT’s own KLETSkous project.

This paper gives a brief introduction to the F’SATI programme, the constructed CubeSat and mission. An outline of the milestones reached thus far with the Tshepiso nano-satellite are given, the outstanding activities that must still be completed and challenges faced. Some of the images captured by the satellite are also presented.

Read TshepisoSAT, six months on orbit.
http://www.cput.ac.za/blogs/fsati/files/2014/05/Paper-SA-AMSAT-Spa ce-Symposium-Pretoria-2014.pdf

CPUT F’SATI News
http://www.cput.ac.za/blogs/fsati/blog/

Southern African Amateur Radio Satellite Association (SA AMSAT)
http://www.amsatsa.org.za/

[ANS thanks AMSAT-UK for the above information]

2014 FUNcube missions – May Update

The FUNcube team have received confirmation that UKube-1, which is hosting the FUNcube-2 payload, is now scheduled for a Soyuz-2-1b Fregat-M launch from Baikonur in Kazakhstan on Saturday, June 28 with the following day as a back-up. The launch time has been quoted as 15:58:28 UT with separation some 9253 seconds later.

The team still understand that, immediately after deployment and activation, UKube-1 will commence transmitting a CW beacon and that this will be later followed by an AX25, 1200 bps BPSK beacon. Both beacons will be on 145.840 MHz. The FUNcube-2 payload, with its telemetry downlink for educational outreach, is expected to be tested later.

FUNcube-3 is the transponder only payload on the QB50 precursor CubeSat “QB50P1". This mission is now scheduled to launch on June 19 on a Dnepr launch vehicle from Dombarovsky near Yasny. The launch time has been quoted as 19:11:11 UT but this has not yet been confirmed. The initial beacon signals, from the main transceiver, are also expected to be AX.25, 1200 bps BPSK packets on 145.815 MHz.

Again more information will be provided as soon as it becomes available!

UKube-1 communications subsystem:
• 145.840 MHz Telemetry, CW, 1k2 BPSK

• 2401.0 MHz S Band Downlink
• 437.425-437.525 MHz UKSEDS myPocketQub Downlink
• 145.915 MHz FUNcube beacon
• FUNcube 400 mW inverting SSB/CW transponder
- 435.080-435.060 MHz Uplink LSB
- 145.930-145.950 MHz Downlink USB

QB50p1 communications subsystem:
• 145.815 MHz 1200 bps BPSK telemetry
• FUNcube inverting 400 mW SSB/CW transponder
- 435.035-435.065 MHz Uplink LSB
- 145.935-145.965 MHz Downlink USB

FUNcube website http://www.funcube.org.uk/

FUNcube Yahoo Group http://amsat-uk.org/funcube/yahoo-group/

FUNcube Forum http://forum.funcube.org.uk/

[ANS thanks AMSAT-UK for the above information]

Shin-En2 Satellite Linear Transponder Frequencies

The IARU Amateur Satellite Frequency Coordination Panel has announced frequencies for the Shin-En2 linear transponder.

Shin-En2 is a 2.85 kg satellite measuring 490×490×475 mm built by students at Kagoshima University in Japan which will carry a 145 to 435 MHz linear transponder into a deep space orbit.

The aims of the mission are:
• To establish communication technologies with a long range as far as the moon.
• To establish a new technology of the ultra-light-weight satellite. Proposing a WSJT 29dBm UHF downlink and a 29dBm 20 kHz linear transponder and a CW beacon all on UHF with a VHF uplink for the transponder.

The orbit will be quite different from the previous satellites. Shin-En2 will have an elliptic orbit around the Sun and travel to a deep space orbit between Venus and Mars. Its inclination will be almost zero, which means Shin-En2 will stay in the Earth’s equatorial plane.

The distance from the Sun will be between 0.7 and 1.3 AU. An Astronomical Unit (AU) is 149,597,871 km.

Shin-En2 IARU coordinated frequencies:
• 437.505 MHz CW beacon
• 437.385 MHz WSJT telemetry
• Inverting SSB/CW transponder
- 145.940-145.960 MHz uplink LSB
- 435.280-435.260 MHz downlink USB

Shin-En2 is expected to launch in the 4th quarter of 2014 with another amateur radio satellite ARTSAT2:DESPATCH on a H-IIA rocket with the asteroid explorer Hayabusa 2 as the main payload.

Kagoshima University satellite development team
http://tinyurl.com/Kagoshima-Satellite

Shin-En2 English Website
http://www.eee.kagoshima-u.ac.jp/~fuku-lab/sinen,english.html

ARTSAT2:DESPATCH – Art and Ham Radio in Deep Space
http://amsat-uk.org/2013/11/03/art-and-ham-radio-in-deep-space/

[ANS thanks AMSAT-UK for the above information]

Radio hams help attempts to command NASA spacecraft

An IEEE article describes how volunteers, including many radio amateurs, are attempting command a 35-year-old NASA spacecraft, the International Sun-Earth Explorer 3 (ISEE-3).

Rachel Courtland interviews Dennis Wingo KD4ETA about the project and mentions the Bochum facility where AMSAT-DL members will be using their 20 metre dish antenna to help establish communications.

Software-defined radio peripherals built by Ettus Research (founded by Matt Ettus N2MJI) have been purchased, which can be used to implement modulator and demodulator programs that would once have had to be built in hardware.

Read the IEEE article at
http://spectrum.ieee.org/tech-talk/aerospace/satellites/space-hackers-prepare-to-reboot-35-year-old-spacecraft

The Watts Up With That website has a more detailed article on the project. The section about the AMSAT-DL Bochum facility mentions two of the team, Achim Vollhardt DH2VA and Mario Lorenz DL5MLO. The problems caused by ITAR are noted.

Read the Watts Up With That article ISEE-3 Reboot Project: Aiming for First Contact at
http://wattsupwiththat.com/2014/05/15/update-isee-3-reboot-project-aiming-for-first-contact/

ISEE-3 / ICE Telecommunications Summary
http://mdkenny.customer.netspace.net.au/ISEE-3.pdf

Dennis Wingo KD4ETA blog http://denniswingo.wordpress.com/

Can radio amateurs command the ISEE-3 / ICE spacecraft ?
http://amsat-uk.org/2014/03/19/can-radio-amateurs-command-the-isee-3-ice-spacecraft/

Radio amateurs receive NASA ISEE-3 / ICE Spacecraft
http://amsat-uk.org/2014/03/09/radio-amateurs-receive-nasa-ise e-3ice-spacecraft/

ITAR restrictions on US radio amateurs to be eased
http://amsat-uk.org/2014/05/19/itar-restrictions-to-be-eased/
ISEE-3/ICE on Facebook https://www.facebook.com/ISEE3returns

[ANS thanks IEEE & AMSAT-UK for the above information]

Upcoming AMSAT Events

Information about AMSAT activities at other important events around the country. Examples of these events are radio club meetings where AMSAT Area Coordinators give presentations, demonstrations of working amateur satellites, and hamfests with an AMSAT presence (a table with AMSAT literature and merchandise, sometimes also with presentations, forums, and/or demonstrations).

Saturday, 7 June 2014 – Kachina Amateur Radio Club's White Mountain Hamfest in Show Low AZ (eastern Arizona, south of US-60/AZ-77/AZ-260) – AMSAT will have a table at this hamfest, and satellite demonstrations are planned.

Friday and Saturday, 13-14 June 2014 – Ham-Com in Plano TX (north of Dallas)

Thursday through Sunday, 17-20 July 2014 – ARRL Centennial Convention in Hartford CT. AMSAT will host a day-long Satellite Workshop on Thursday, and have a booth at the convention along with an AMSAT Forum and demonstrations throughout the convention.

Friday through Sunday, 12-14 September 2014 – ARRL Southwestern Division Convention 2014 in San Diego CA (north of the city center, near Montgomery Field airport & I-805/CA-163 interchange) – AMSAT will have a booth at this convention, there will be on-air demonstrations using satellites throughout the convention, and a presentation on amateur satellites and AMSAT

[ANS thanks AMSAT-NA for the above information]

ARISS News

Upcoming Contacts
There will be a lapse in contacts during the period from 2014-05-12 to 2014-06-15. Licensed crew members will join crew on board the ISS and contacts are expected to resume in late June.

[ANS thanks ARISS for the above information]

Satellite Shorts from All Over

Canadian Hams Attempt to Cross the Pond on Two Meters

A group of Amateur Radio operators from Atlantic Canada will operate

from Pouch Cove, Newfoundland, from 4-12 July 2014 in a bid to complete a 2 meter Trans-Atlantic QSO and claim the Brendan Trophy.

The expedition will operate from Maidenhead Grid GN37os on 144.155 MHz. It will run 750 watts into a 30 meter long rope yagi with a gain of more than 23 dB over a dipole. The group will concentrate its efforts on JT65B, a digital mode that offers greatly enhanced performance over more conventional modes. It will have the capability to use other modes including CW and SSB if conditions warrant however. The callsign used will be VC1T.

Members of the expedition include Fred Archibald, VE1FA, Roger Sturtevant, VE1SKY, Helen Archibald VA1YL, Rich Pieniaszek, VA1CHP, and Al Penney, VO1NO. The Brendan Trophy is a series of awards offered by the Irish Radio Transmitters Society to the first Amateur Radio operators to complete a 2 meter Trans-Atlantic QSO.

Details on the expedition can be found on the team's website www.brendanquest.org. Real time information on operating modes and schedules will be posted during the expedition on the team's web site, the ON4KST site and the G4CQM Shoutbox. Facebook users are also welcome to join the group's page "Brendan Quest 2M meterTrans-Atlantic Attempt 2014.

Background Information:

2014 Transatlantic Two Meter "Brendan Quest" Objectives:

1. Complete one or more legal, confirmed, two-way QSOs between North America and Europe on the Amateur Radio 2 meter band using terrestrial propagation modes;

2. Complete such contacts using both "traditional" (CW or SSB) and "non traditional" (JT65B or ISCAT) modes; and;

3. Failing the above, to be heard in Europe.

Operators (North America): Fred Archibald VE1FA; Helen Archibald VA1YL; Al Penney VO1NO; Rich Pieniaczek VA1CHP; Roger Sturtevant VE1SKY.

Operation: 4 to 12 July 2014.
Call: A special event callsign will be used - VC1T.
Frequency and Modes: 144.155 MHz +/- 20 Hz operating 24 hours a day for the entire period, transmitting full legal power on even minutes and receiving on odd minutes using JT65B. Other modes may be attempted as required. Audible transatlantic JT65B reception and QSO will be followed by a CW attempt.

North America QTH: Pouch Cove, Newfoundland, Canada.
Latitude 47.76942 North, Longitude 52.76384 West
Elevation: 65 feet (20 meters) above sea level.
Grid Square: GN37os.
IOTA island NA-027.
Antenna height is 85 feet (26 meters) above sea level on a bluff on the edge of the Atlantic. There is no land between the transmit location and Europe through bearing range of 013 to 108 degrees True. The transmit location is 3040 km from Irish coast, 3400 km from Poldhu, and 23 km from Marconi's 1901 reception site.

Antenna: Horizontally polarized "rope ladder" Yagi, with 43 elements consisting of 1 reflector, 1 driven element and 41 directors, suspended and aligned on 2 strands of Kevlar rope 65 cm apart. Its overall length is 30 meters. Because the ground slopes towards the ocean, the

height of the antenna varies from 6 meters above ground at the reflector, to 8.5 meters at the opposite end. Its feedpoint impedance is 50 ohms, and it will employ a ferrite choke balun.
The SWR is 1.1 to 1.2. Forward gain is 23.9 dB over a dipole. The front to back ratio is 32 db, while the front to side ratio is greater than 25 db (270 degrees). The take off angle of the main lobe is 4.5 degrees. The beamwidth is 15.6 degrees at the -3db points, and beam thickness is 4.7 degrees at the -3db points. When driven with 750W, the Effective Radiated Power in the center of the major lobe should be about 150kW.

Antenna coverage in Europe at -3db points: Based on an antenna azimuth of 062 degrees True and a beamwidth of 15.8 degrees at the -3db points, the antenna beam width will be 069 degrees to 054 degrees True, so straight line propagation will cover all Ireland, UK, and parts of Norway, France,
and Holland. Of course propagation paths may be skewed.

[ANS thanks the Make More Miles on VHF Newsletter for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive addi-tional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the stu-dent rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,
This week's ANS Editor,
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